## Space Weather Forecast

Issued on Wednesday, 19 October 2022 at 01:26 Local

**This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales**

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**Space Weather Forecast Headline: No significant activity.**

**Analysis of Space Weather Activity over past 24 hours**

**Solar Activity:** Solar activity has been Low over the past 24 hours, with a decreasing number of common-class flares, mostly originating from a region approaching the southwest limb of the visible disc. This is the largest and most complex group, although it is a relatively small and magnetically straightforward region. There are currently four other regions on the visible disc, most of which appear to be relatively small and simple bipolar regions, with little change. No Earth directed Coronal Mass Ejections (CMEs) were in evidence on available satellite imagery.

**Solar Wind / Geomagnetic Activity:** The solar wind showed an ongoing but waning connection to the fast wind of a coronal hole. The wind speed declined from around 550 km/s to 500 km/s. The Interplanetary Magnetic Field was weak, with the north-south component also varying weakly. Geomagnetic activity was Quiet (Kp 0-2).

**Energetic Particles / Solar Radiation:** No solar radiation storms were observed.

**Four-Day Space Weather Forecast Summary**

**Solar Activity:** Solar activity is likely to be Low or Very Low, barring any significant sunspot development.

**Solar Wind / Geomagnetic Activity:** There are no Earth-directed CMEs in the current forecast. Earth is currently in a waning fast wind from a coronal hole, with solar winds declining to occasionally reach Low levels by Day 2 (20 Oct). A second coronal hole probably sustaining slightly elevated solar winds from Day 3 (21 Oct).
Geomagnetic activity is likely to remain Quiet with possible Unsettled or Active intervals, especially from Day 3 (21 Oct) onwards as the next coronal hole fast wind arrives.

**Energetic Particles / Solar Radiation:** No solar radiation storms are expected.

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Met Office

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**Geomagnetic Storms:**

| Geo-Magnetic Storm Probability (Exceedance) | Level | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Minor or Moderate | G1 to G2 | No | 1 | 1 | 5 | 5 |
| Strong | G3 | No | 1 | 1 | 1 | 1 |
| Severe | G4 | No | 1 | 1 | 1 | 1 |
| Extreme | G5 | No | 1 | 1 | 1 | 1 |

**Radio Blackouts - X Ray Flares:**

| X Ray Flares Probability | Level | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Active | R1-R2 M Class | No | 5 | 5 | 1 | 1 |
| Very Active | R3 to R5 X | No | 1 | 1 | 1 | 1 |

**Solar Radiation Storms - (High Energy Protons):**

| Radiation Storms Probability (Exceedance) | Level ($cm^{-2}$ $sr^{-1}$ $s^{-1}$) | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Active | ≥ S1 | No | 1 | 1 | 1 | 1 |
| Very Active | ≥ S3 * | No | 1 | 1 | 1 | 1 |

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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